

REMARKS

Claims 1-10 were pending and presented for examination and in this application. In an Office action dated February 17, 2006, claims 1-10 were rejected. Applicants thank Examiner for examination of the claims pending in this application and address Examiner's comments below.

Applicants are adding new claims 11-12 with this Amendment A and Response. Applicants are amending claims 1-10 in this Amendment A and Response. These changes do not to introduce new matter, and their entry is respectfully requested. In making these amendments, Applicants have not and do not narrow the scope of the protection to which Applicants consider the claimed invention to be entitled but rather to more clearly define the invention claimed by Applicants.

In view of the Amendments herein and the Remarks that follow, Applicants respectfully request that Examiner reconsider all outstanding objections and rejections, and withdraw them.

Response to Rejection Under 35 USC 102(b) in View of Hansen

In the 2nd to 7th paragraphs of the Office action, Examiner rejected claims 1-10 under 35 USC § 102(b) as allegedly being anticipated by U.S. Patent No. 6,006,318 to Hansen et al. ("Hansen"). This rejection is now traversed.

Claim 1 has been amended to now recite:

A method for accessing a plurality of dynamic random access memory (DRAM) devices in parallel, each device having at least one memory banks, in a parallel packet processor, the method comprising:

partitioning a plurality of data words into data segments, the plurality of data words comprising a first data word and a second data word, each of the data segments being associated with one of the plurality of data words;

determining a distribution of the data segments to a plurality of memory banks, the plurality of memory banks being among the memory banks of the plurality of DRAM devices, at least one data segment associated with the first word to be stored in parallel with at least one data segment associated with the second word;

storing in parallel the data segments into the plurality of memory banks based on the distribution;

retrieving the data segments associated with a requested data word in parallel from the memory banks of the plurality of DRAM devices based on the distribution, the requested data word being one of the plurality of data words; and

reassembling the retrieved data segments into the requested data word.
(Emphasis added)

These claimed features are advantageous in that a distribution is determined for the storage of the partitioned data words in the DRAM devices. The partitioning and the determined distribution can be configured to maximize the performance of DRAM operations. For example, the distribution of the data segments is determined based on the number of data segments and the number of memory banks in the DRAM devices, so that the data segments are more evenly distributed among the memory banks. By storing the data segments more evenly among the memory banks, the number of memory operations required to store the data segments is reduced, thereby improving the DRAM operations performance. By storing the data segments more evenly among the memory banks, the memory banks can also accommodate more data words, thereby improving the efficiency of the usage of the memory banks.

Hansen does not disclose claim 1 as amended. Hansen discloses a system for media processing that maintains substantial peak data throughput in the execution and transmission of multiple media data streams. Col. 4, lines 3-13. Examiner cited col. 9, lines 16-25 to support the rejection. However, col. 9, lines 13-30 describes a configuration of a general purpose media processor, and discloses no memory operations. Examiner also cited Figure 13 to support the rejection. The section in the specification corresponding to Figure 13 is between col. 18, line 47 and col. 22, line 6. It merely discloses a memory interface coupled to four standard memory devices, wherein each standard memory device includes four banks of DRAM. Col. 19, lines 16-25.

Hansen does not disclose partitioning a plurality of data words into data segments, nor does it disclose determining a distribution of the data segments. In Hansen, data words are stored in segments among the memory banks, the length of a segment matches the data width of the corresponding memory bank. Comparing to the claimed invention, this approach is inefficient. Take the memory system described in Hansen as an example. Hansen described a memory interface coupled to four standard memory devices, each including four 16-bit wide DRAM banks. Col. 19, lines 16-25. Assuming two data words need to be stored in the memory system described above, one is 130 bits long and the other is 100 bits long. The claimed invention would partition the two data words into 16 16-bit long segments and determine that the 16 segments be stored in parallel to the DRAM banks in one memory operation. The system described in Hansen, on the other hand, would store the two data words in two sequential memory operations, first storing the 130-bit word among 9 DRAM banks and then storing the 100-bit word among 7 DRAM banks. Therefore, the claimed invention is more efficient than the system described in Hansen.

Based on the above Amendment and Remarks, Applicants respectfully submit that for at least these reasons claim 1 is patentably distinguishable over the cited reference.

Therefore, Applicants respectfully request that Examiner reconsider the rejection, and withdraw it.

As to the dependent claims 2-10, because claims 2-10 are dependent on claim 1, all arguments advanced above with respect to claim 1 are hereby incorporated so as to apply to claims 2-10.

Applicants' have added new claims 11 and 12 for which Applicants request consideration and examination. Applicants respectfully submit that these are supported by the specification and are commensurate within the scope of protection to which Applicants' believe they are entitled. Claim 11 has limitations similar to claim 1 and therefore is likewise believed to be patentably distinct over the prior art for the same reasons provided above with reference to claim 1. Claim 12 is dependent on claim 11 and therefore is also believed to be patentable.



Conclusion

In sum, Applicants respectfully submit that claims 1 through 12, as presented herein, are patentably distinguishable over the cited references (including references cited, but not applied). Therefore, Applicants request reconsideration of the basis for the rejections to these claims and request allowance of them.

In addition, Applicants respectfully invite Examiner to contact Applicants' representative at the number provided below if Examiner believes it will help expedite furtherance of this application.

Date: 5/17/06

By: _____

Respectfully Submitted,
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